FORCES AND MAGNETS - YEAR 3 SPRING TERM

ST RICHARD'S SCHOOL

Sticky Knowledge

What are forces?

- Forces are **pushes** and **pulls.**
- Forces change the **motion** of an object. They will make it start to move or speed up, slow it down or even make it stop.
- Forces are measured in **Newtons (N)** using a **Newton meter**. A Newton meter is sometimes called a **Force meter**.

- Forces can be **balanced** or **unbalanced**.
- For something to move, the forces need to be **unbalanced**; one force needs to be stronger than the other.

Magnetic Materials

Magnetic materials are always made of **metal**, but not all metals are magnetic.

Magnetic	Non-Magnetic
iron	aluminium
steel	copper
nickel	gold
	silver

How do different surfaces affect the motion of an object?

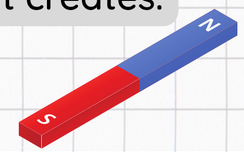
Forces act in **opposite** directions to each other. When an object moves across a **surface**, **friction** acts as an opposite force.

Friction is a force that holds back the **motion** of an object. Some **surfaces** create more **friction** than others.

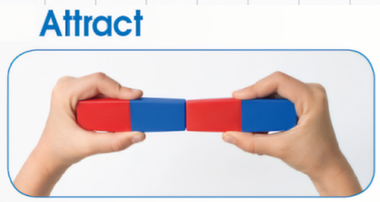
The **rougher** a surface is, the <u>more friction</u> it creates.

The **smoother** a surface is, the <u>less friction</u> it creates.

Magnets and Magnetism



- **Magnets** produce an area of force around them called a **magnetic field**.
- When objects enter this magnetic field, they will be **attracted to** or **repelled from** the magnet depending on if they are **magnetic**.
- The two ends of a **magnet** are known as the **poles**: the <u>north pole</u> and the <u>south pole</u>.



Opposite poles attract

Same poles repel

Key Vocabulary

force	The scientific word for the pulling and pushing effect.
motion	The action of moving; movement.
accelerate	To speed up.
decelerate	To slow down.
magnet	A piece of iron which attracts some metals; can be different shapes e.g bar, horseshoe.
magnetic	Used to describe something (a metal) that is attracted to a magnet.
poles	The two ends of a magnet - north and south.
repel	The force of one object pushing another object away from it.
attract	The force of one object pulling another object towards it.
magnetic field	The area around a magnet where the magnetic forces work.

Try it out!

A **magnetic force** can act at a distance.